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(54) Title: MODULATION OF PROTEIN METHYLATION AND PHOSPHOPROTEIN PHOSPHATE

(57) Abstract: The invention relates to methylated proteins that control protein phosphorylation, particularly phosphoesterases, such as PP2A. It relates to screening methods for determining agents that affect methylation of these proteins and thus also modulate the level of phosphorylation of phosphoproteins. It relates as well to the agents and to compositions comprising the agents. In a particular aspect in this regard the invention relates to agents that alter PP2A methylation and that thereby affect phosphorylation of phosphoproteins that play an important role in health or disease, such as the tau protein which is implicated in the etiology of Alzheimer's Disease. The invention further relates to diagnostic methods based on protein methylation levels, to compositions comprising agents for affecting methylation of proteins and for controlling the phosphate complement of phosphoproteins. Additionally, the invention relates to methods for administering the agents and compositions to affect methylation of proteins physiologically and to modulate the phosphate complement of phosphoproteins. Examples in this regard include agents and compositions that affect physiological activity of PP2A and alter the phosphate complement of phosphoproteins that are altered in disease.

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